



ABSTRACT

The present invention provides a A method for producing a single crystal by pulling a single crystal from a raw material melt in a chamber ~~in accordance with Czochralski method, comprising according to the Czochralski method, including~~ pulling a single crystal having a defect-free region ~~region~~, which is outside an OSF ~~region~~ ~~region~~, to occur in a ring shape in the radial direction ~~and direction, and in~~ which interstitial-type and vacancy-type defects do not exist ~~in, wherein the pulling of the single crystal is performed with being exist.~~ The pulling of the single crystal is controlled so that an average ~~of cooling~~ ~~cooling~~ rate in passing through a temperature region of the ~~melt~~ ~~melting~~ point of the single crystal to 950 °C is in the range of 0.96 °C/min or ~~more and so that an average of more, an average~~ cooling rate in passing through a temperature region of 1150 °C to 1080 °C is in the range of 0.88 °C/min or ~~more and so that an average of more, and an average~~ cooling rate in passing through a temperature region of 1050 °C to 950 °C is in the range of 0.71 °C/min or more. Thereby, ~~production margin in pulling a single crystal having a defect free region can be considerably enlarged and therefore there can be provided a method for producing a single crystal by which production yield and productivity of the crystal having the defect free region can be considerably improved.~~